



LEACHING STUDY
Prallethrin

Understanding what happens when someone doesn't follow the instructions for use.

In 2022, using European Chemicals Agency (ECHA) methodology and deposition study data, Thermacell utilized the experience and expertise of a 3rd party laboratory to assess human health and environmental hazard from products under real-world outdoor use scenarios.



What if I drop a Prallethrin mat into a natural body of water?



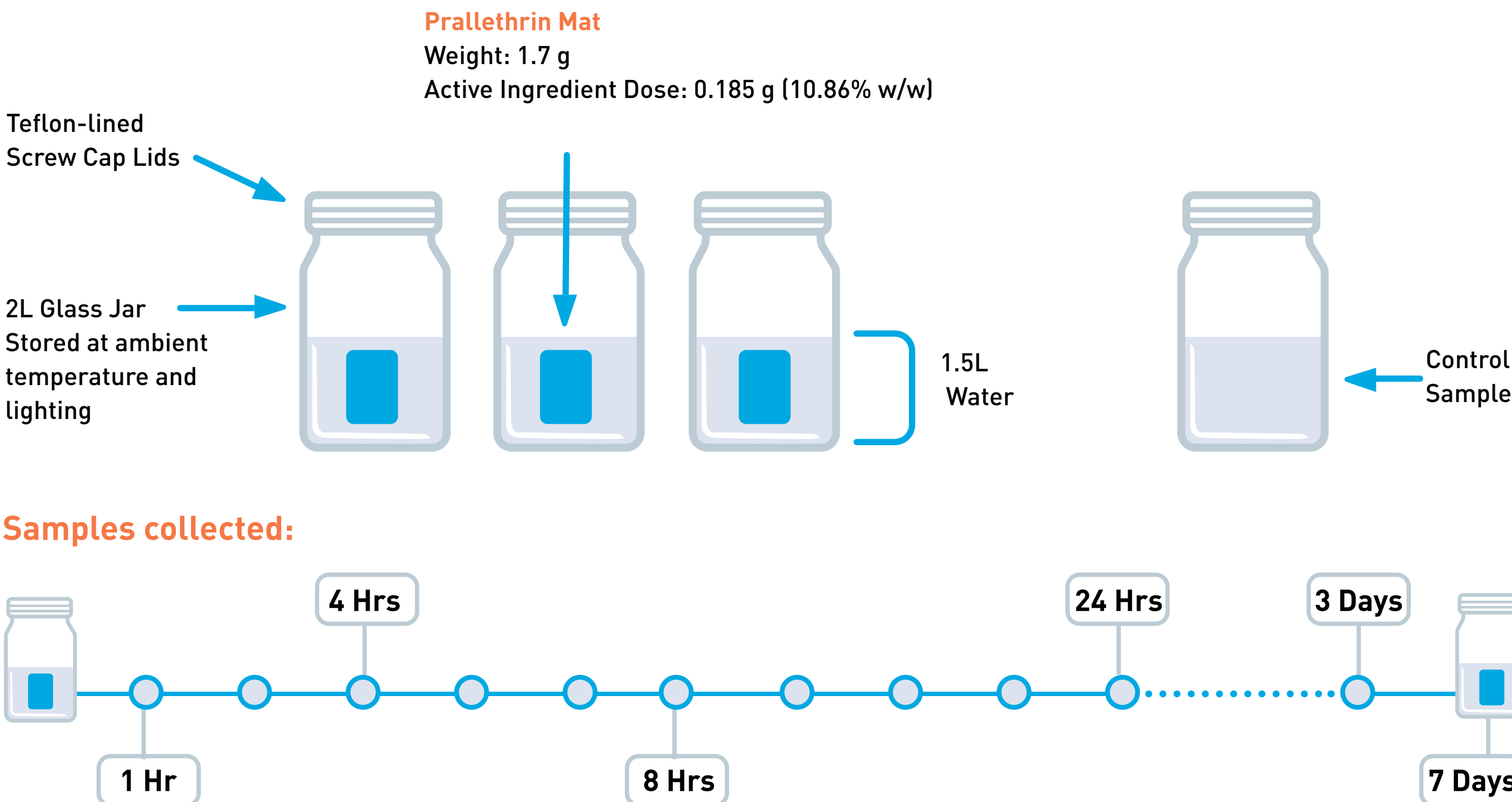
What if I drop a Prallethrin mat in the forest?

We don't recommend that anyone drop a mat into water, but in the case of an accident there should be no concern. The solubility of our Prallethrin mat in water is low, meaning that the amount of the active ingredient that leaches from a mat into the water passes the risk assessment based on the ECHA exposure scenario for a pond, which is worst case compared to a lake. Because we know this behavior in water and that the only way for the Prallethrin to travel from the mat into soil is by being physically transported via rainwater, a mat dropped in the forest will have a relatively **small emission to soil and be extremely localized.**" – Dr. John Hainze, VP of Science & Research at Thermacell

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THE TEST

Methodology: Natural water samples were taken from the surface of a local river. Exposed Prallethrin mats were dropped into the standing water for seven days. Samples were taken at regular intervals to **measure the amount of the active ingredient that would leach into the water over time.**



THE RESULTS

Conclusion: Based on our calculations, it can be concluded that should a mat fall into a pond or forest it is **unlikely that there would be a concern for the aquatic or forest environment.**

Mat dropped in a lake



The impact from a mat dropped in a natural body of water **should not be of concern based on the ECHA risk assessment exposure scenario.** Always plan ahead to dispose of used mats when out in nature.

Mat dropped in the woods



The impact from a mat dropped in the woods **should not be of concern based on the ECHA risk assessment exposure scenario.** Always plan ahead to dispose of used mats when out in nature.



A small and diminishing amount of prallethrin is released gradually over the seven-day period, which will break down through exposure to sunlight:

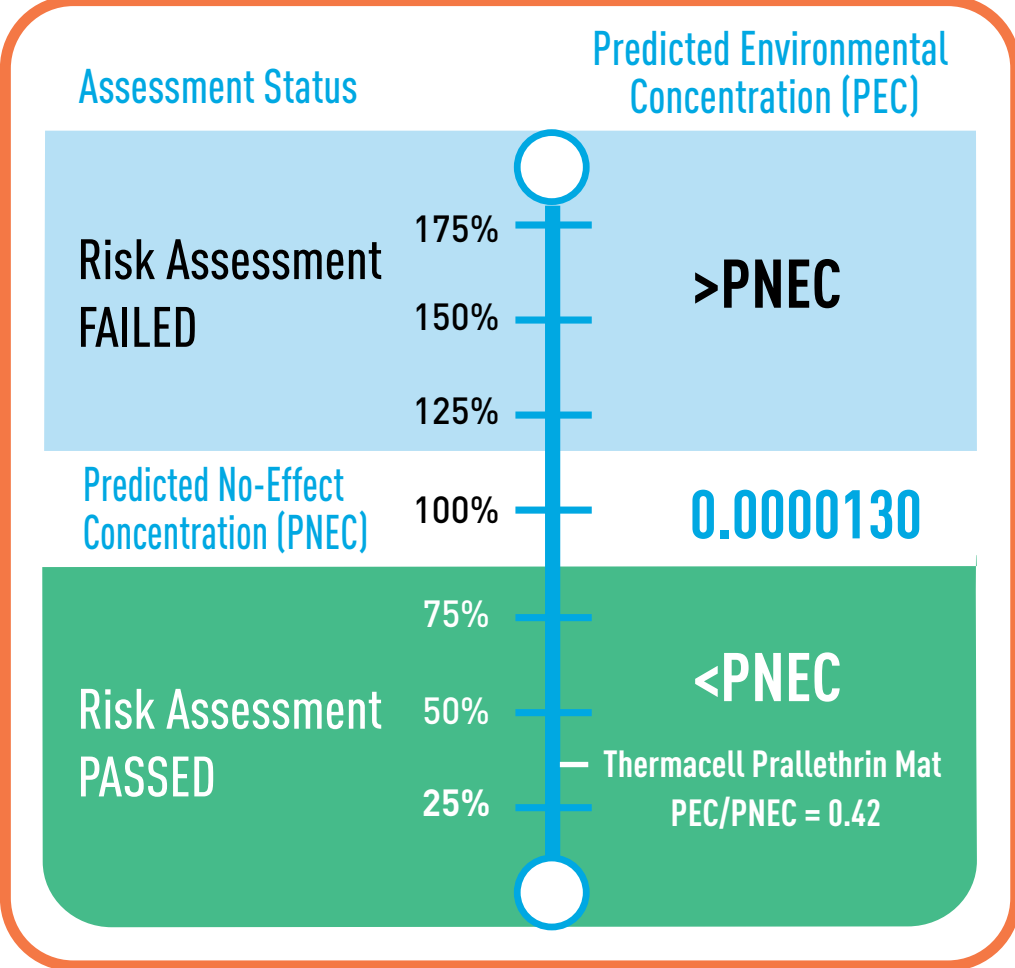
- Directly breaks down on sterile water surface when exposed to sunlight (13.6-hour half-life)

Source: National Center for Biotechnology Information (2022). PubChem Annotation Record for Prallethrin, Source: Hazardous Substances Data Bank (HSDB). Retrieved January 31, 2022 from <https://pubchem.ncbi.nlm.nih.gov/source/hsdb/8169>.

Water samples analyzed for Prallethrin reached an average concentration of 3.19 ppm (3.19 mg/L) at seven days. The rate of release from the mat into water had declined considerably at 7 days but was not zero. Given the ongoing declining trend, we can project a final concentration of 5.4 ppm (5.4 mg/L) at 15 days. Below are the results when considering degradation (e.g. via photolysis) and dilution (e.g. in pond) after unintended release of the active ingredient into the environment over 15 days.

As shown in the table below, the amount of Prallethrin that leached into the water was less than **1/2 of the predicted no effect level concentration (PEC / PNEC Value).**

Active Ingredient	Amount Present in 1.5L Jar After 7 Days (mg/L)	Dilution In Pond After 15 Days (Predicted Environmental Concentration - PEC) (mg/L)	Predicted No-Effect Concentration in Water (PNEC) (mg/L)	PEC / PNEC After 15 Days (mg/L)
Prallethrin	3.19	0.00000540	0.0000130	0.42



Study Reference
Moate T.F. (2022), Residues of Prallethrin and d-Allethrin in Surface Water Exposed to Repellent Mat Products, Golden Pacific Laboratories, LLC (GPL), 4720 W. Jennifer Avenue, Suite 105, Fresno, California 93722, GPL Study Number: 221054, August 16, 2022